

The cost of health
services delivered at
primary care facilities in

QATAR



مجلس الصحة
لدول مجلس التعاون
Gulf Health Council



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Executive summary

Strong primary healthcare (PHC) is the key to more efficient health systems with lower health spending and better health outcomes. This report determines the cost of selected clinical services delivered through the Primary Health Care Cooperation (PHCC) in Qatar to further promote preventative and close-to-client primary care services in the country. The cost of a total of 71 public sector primary level clinical outpatient services was estimated based on costs of the health workforce as well as drugs and supplies. Importantly, additional PHC provisions, such as systemic PHC resources (e.g., infrastructure or policy development), multisectoral policies and health prevention, as well as PHC delivered by the private sector, were not costed in this study. Services delivered through private and other public providers, such as the Qatar Red Crescent, were not modelled in this study. Note that the costs of selected primary care services modelled in this study are therefore not directly comparable to health expenditure.

This report also highlights the role PHC can play in addressing the growing non-communicable disease (NCD) burden experienced across the region. Primary healthcare services support screening, prevention and treatment for NCDs and can achieve better health outcomes with lower health spending for NCD management. Finally, this study provides recommendations to improve future resource allocations for public PHC to meet evolving population health needs.

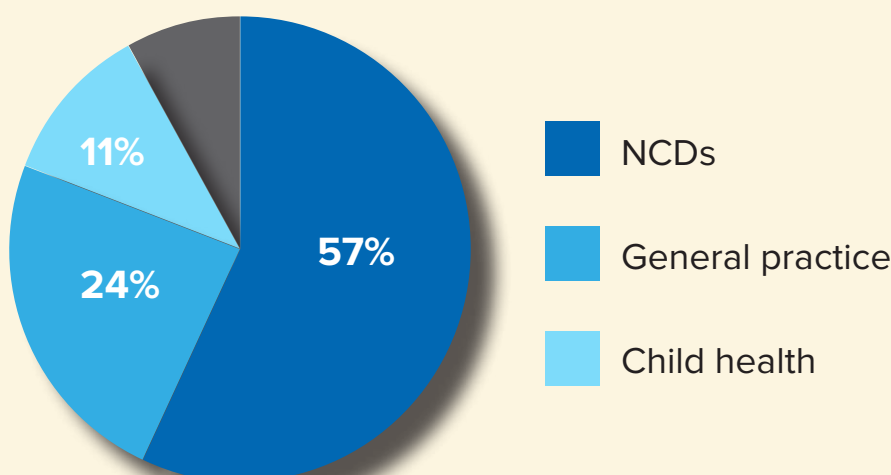
Cost of primary health clinical services

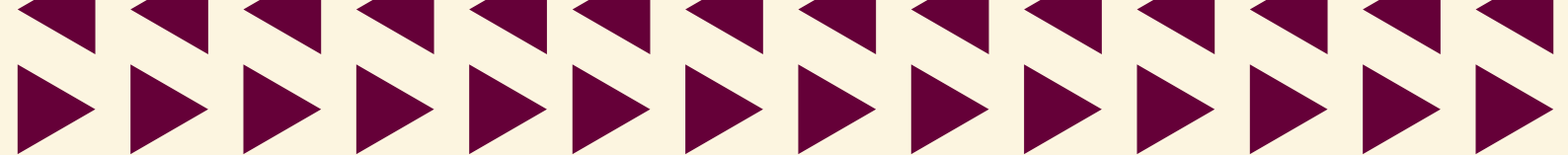
Primary care clinical services cost Qatar

US\$559 million

in 2019. This is equivalent to US\$200 per capita.

Main drivers for primary care clinical service costs





Key findings from the analysis of a set of clinical services provided at the primary care level in Qatar:

- **The total cost for the set of clinical services provided within PHCC at the primary care level in Qatar in 2019 was US\$559 million.** This is equivalent to US\$199.68 per capita for the set of clinical services costed.
- **The main drivers for the cost of clinical services were NCDs, general practice and child health.** The programmes contributing the most to the total cost were non-communicable diseases (NCDs) with 57 percent and general practice with 24 percent.
- **There is room to scale-up coverage for NCD clinical and screening services.** Indeed, screening services for cancer, risk of cardiovascular disease and diabetes as well as diabetes complications only accounted for 0.5 percent of the total costs. Based on current coverage rates, it is estimated that over 1.4 million people did not receive the necessary NCD screening services and 1.4 million people did not receive required NCD clinical services at the public primary care level (PHCC) in Qatar in 2019.
- **Mental health services at PHC level could be strengthened.** The mental health programme makes up 0.1 percent of the total costs, mainly because of a low coverage rate. It is estimated that 430,720 people did not receive mental health services they needed within PHCC at the public primary care level.

Recommendations

Scale-up NCD clinical and screening services delivered at primary care level.

Shift mental health services from secondary to primary care facilities.

Launch initiatives to strengthen the national healthcare workforce.

Leverage the modelling in this study to further improve primary care efficiencies and health outcomes.



Introduction

The 1978 Alma-Ata Declaration was a landmark event in health history calling for health systems to be orientated towards primary healthcare. In 2018, 40 years later, the Astana Declaration reaffirmed global commitment to PHC as an essential approach to attaining universal health coverage and health-related sustainable development goals. PHC is an approach to healthcare based upon three components: multisector policy and action, empowered people and communities, and primary healthcare as the core of integrated health services within a country.¹ While definitions of PHC vary (see **Box 1**), it generally not only refers to the first point of contact for medical care but also encompasses health education, prevention and promotion.

Efficient PHC has health and economic benefits. A strong PHC system can improve health system efficiency, reduce health costs, increase patient satisfaction and tackle inequalities by improving health outcomes across socio-economic indicators.^{2,3,4} Ultimately, investing in PHC can lead to healthier and more productive populations with an association between PHC and lower mortality rates found across high, middle, and low-income countries.^{5,6}

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- 1 Operational framework for primary healthcare: transforming vision into action. Geneva: World Health Organization and the United Nations Children’s Fund (UNICEF), 2020. Licence: CC BY-NC-SA 3.0 IGO.
 - 2 Organisation for Economic Cooperation and Development (OECD). (2020), Realising the Potential of Primary Healthcare, OECD Health Policy Studies, OECD Publishing, Paris,. Available at: <https://doi.org/10.1787/a92adee4-en>.
 - 3 Starfield B. (1994). Is primary care essential?. *Lancet* (London, England), 344(8930), 1129–1133. Available at: [https://doi.org/10.1016/s0140-6736\(94\)90634-3](https://doi.org/10.1016/s0140-6736(94)90634-3)
 - 4 Starfield, B., Shi, L., & Macinko, J. (2005). Contribution of primary care to health systems and health. *The Milbank quarterly*, 83(3), 457–502. Available at: <https://doi.org/10.1111/j.1468-0009.2005.00409.x>
 - 5 Macinko, J., Starfield, B., & Shi, L. (2003). The contribution of primary care systems to health outcomes within Organization for Economic Cooperation and Development (OECD) countries, 1970-1998. *Health services research*, 38(3), 831–865. Available at: <https://doi.org/10.1111/1475-6773.00149>
 - 6 Macinko, J., Starfield, B. and Shi, L. (2003). The Contribution of Primary Care Systems to Health Outcomes within Organization for Economic Cooperation and Development (OECD) Countries, 1970–1998. *Health Services Research*, 38: 831-865. Available at: <https://doi.org/10.1111/1475-6773.00149>
 - 6 Macinko, J., Starfield, B., Erinosh, T. (2009). The impact of primary healthcare on population health in low and middle income countries. *Journal of Ambulatory Care Management*, 32:2;150-171.

Box 1. What is primary healthcare?

While long established as a concept, the definition of primary healthcare continues to evolve with many definitions existing. Generally speaking, PHC refers to the first, and main, point of contact with the national healthcare system on both an individual and community level. Hallmarks of PHC include^{7,8,9,10,11}:

- universal accessibility
- person- rather than disease-focused
- continuous across the life-span
- comprehensive services, including prevention, diagnosis and treatment

In this report, PHC is defined as per the OECD definition:

*“Primary healthcare is expected to be the first and main point of contact for most people with the healthcare system, focused on the people and their communities. It takes into account the whole person and is patient-focused, as opposed to disease or organ system-focused, and thus recognises not only physical, but also psychological and social dimensions of health and well-being.”*⁷

PHC can improve health system efficiency by reducing hospitalization rates and emergency department visits, thereby reducing healthcare costs.¹² This has been seen in countries where a referral from a general practitioner or family practitioner facilitates hospital admission. PHC serves to be the first point of contact between a patient and the health system, thereby allowing the health system to better manage chronic conditions and to perform preventative measures.¹³ With a better understanding of individual patient and whole family risks, both preventative and chronic care can be provided in a patient-centred way. With these considerations, PHC provides for a healthier population and a more efficient, cost-effective health system.

7 OECD (2020), Realising the Potential of Primary Healthcare, OECD Health Policy Studies, OECD Publishing, Paris, <https://doi.org/10.1787/a92adee4-en>.

8 Operational framework for primary healthcare: transforming vision into action. Geneva: World Health Organization and the United Nations Children’s Fund (UNICEF), 2020. Licence: CC BY-NC-SA 3.0 IGO.

9 Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. *Millbank Quarterly*. 2005;83(3): 457–502.

10 Salah, K. & Kidd, M. (2019). Family Practice in the Eastern Mediterranean Region: Universal health coverage and quality primary care. Taylor & Francis Group, Florida, USA.

11 OECD (2019), Deriving preliminary estimates of primary care spending under the SHA 2011 framework. <https://www.oecd.org/health/health-systems/Preliminary-Estimates-of-Primary-Care-Spending-under-SHA-2011-Framework.pdf>

12 OECD (2020), Realising the Potential of Primary Healthcare, OECD Health Policy Studies, OECD Publishing, Paris. Available at: <https://doi.org/10.1787/a92adee4-en>.

13 OECD (2020), Realising the Potential of Primary Healthcare, OECD Health Policy Studies, OECD Publishing, Paris,. Available at: <https://doi.org/10.1787/a92adee4-en>.

Box 2. Characteristics of strong primary healthcare^{14, 15}

- Comprehensive and continuous care accessible to all
- Education and training provided mostly within primary care
- Individual healthcare provider associated with each patient or family
- Efficient referral systems to secondary and tertiary care
- System is targeted to the needs of the local population

Globally there is a renewed commitment to PHC in light of changing population and health characteristics. Aging populations, population growth, increasing health literacy and public expectations of health services are increasing demand for healthcare globally and in the Eastern Mediterranean Region (EMR).¹⁶ Changing disease burdens toward non-communicable diseases and increasing access to technology among the general population are further driving changes in PHC. Estimates regarding PHC note that 90 percent of all health needs can be met at the PHC level, giving countries a clear path forward in improving health and health system efficiency.¹⁷

There is a long history of primary healthcare in the Eastern Mediterranean, with the Qatar Declaration on Primary Healthcare endorsed by all regional countries in 2008.¹⁸ The declaration stands for Member State commitment to achieve better health and wellness through strengthening PHC-based health systems. The region is seeing a growing commitment to family practice (FP) as a way to improve primary healthcare, and ultimately universal health coverage. PHC can be delivered through general practice and family practice, with the two terms used interchangeably in many circumstances. For the purpose of this report, general practice (GP) will be considered as services delivered by a physician who is qualified to deliver primary healthcare to an individual, their family and their community through general practice medical training. Family practice will refer to services delivered by a family physician who has undergone specialty training to care for the overall health of families and individuals across their lifespan.¹⁹

14 World Health Organization. (2008). The world health report 2008: primary healthcare now more than ever. World Health Organization. Available at: <https://apps.who.int/iris/handle/10665/43949>

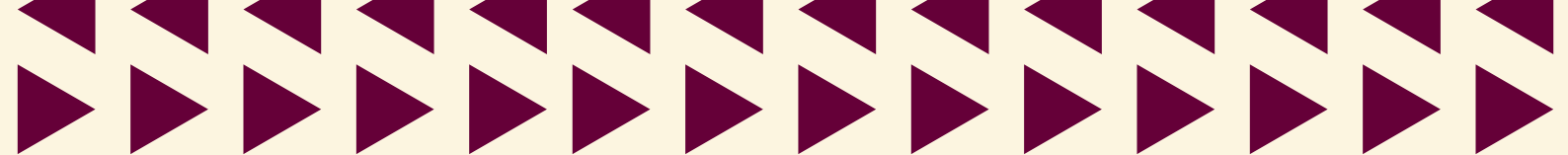
15 van Weel, C., & Kidd, M. R. (2018). Why strengthening primary healthcare is essential to achieving universal health coverage. *CMAJ: Canadian Medical Association journal = journal de l'Association medicale canadienne*, 190(15), E463–E466. Available at: <https://doi.org/10.1503/cmaj.170784>

16 Salah, H. et Kidd, M. (Ed.) (2019): Family Practice in the Eastern Mediterranean Region. CRC Press. Available at: <https://applications.emro.who.int/docs/9781138498587-eng.pdf>

17 World Health Organization, Regional Committee for the Eastern Mediterranean. (2009). Progress report on strengthening primary health care based health systems. https://applications.emro.who.int/docs/EM_RC56_INF_DOC_4_en.pdf

18 World Health Organization, Regional Committee for the Eastern Mediterranean. (2009). Progress report on strengthening primary health care based health systems. https://applications.emro.who.int/docs/EM_RC56_INF_DOC_4_en.pdf

19 Salah, H. et Kidd, M. (Ed.) (2019): Family Practice in the Eastern Mediterranean Region. CRC Press. Available at: <https://applications.emro.who.int/docs/9781138498587-eng.pdf>



An example of this would be one family physician, or team, providing comprehensive PHC to all members of a family unit. Family practice therefore delivers the key elements of PHC and will be considered the basis of PHC for this report.

Realising the highest possible rate of universal health coverage is essential to achieving the health-related Sustainable Development Goals. As primary healthcare is the cornerstone of comprehensive health coverage, evidence-based planning is critical to ensuring the continuity of primary healthcare programmes. To support increased investments in PHC programmes and to facilitate progress towards achieving universal health coverage, the United Nations has been invited to assist Gulf Cooperation Council (GCC) countries of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE, in undertaking a comparative study on the costs of PHC programmes. Knowing the cost of PHC components and having estimates of programme costs for the coming years will help countries find practical financing and allocative solutions to help direct investments to areas that reduce costs such as the medicine industry, medical supplies and training of health personnel according to country needs. This will also enhance the continuity of health services in GCC countries regarding both efficiency and quality to meet increasing demand.

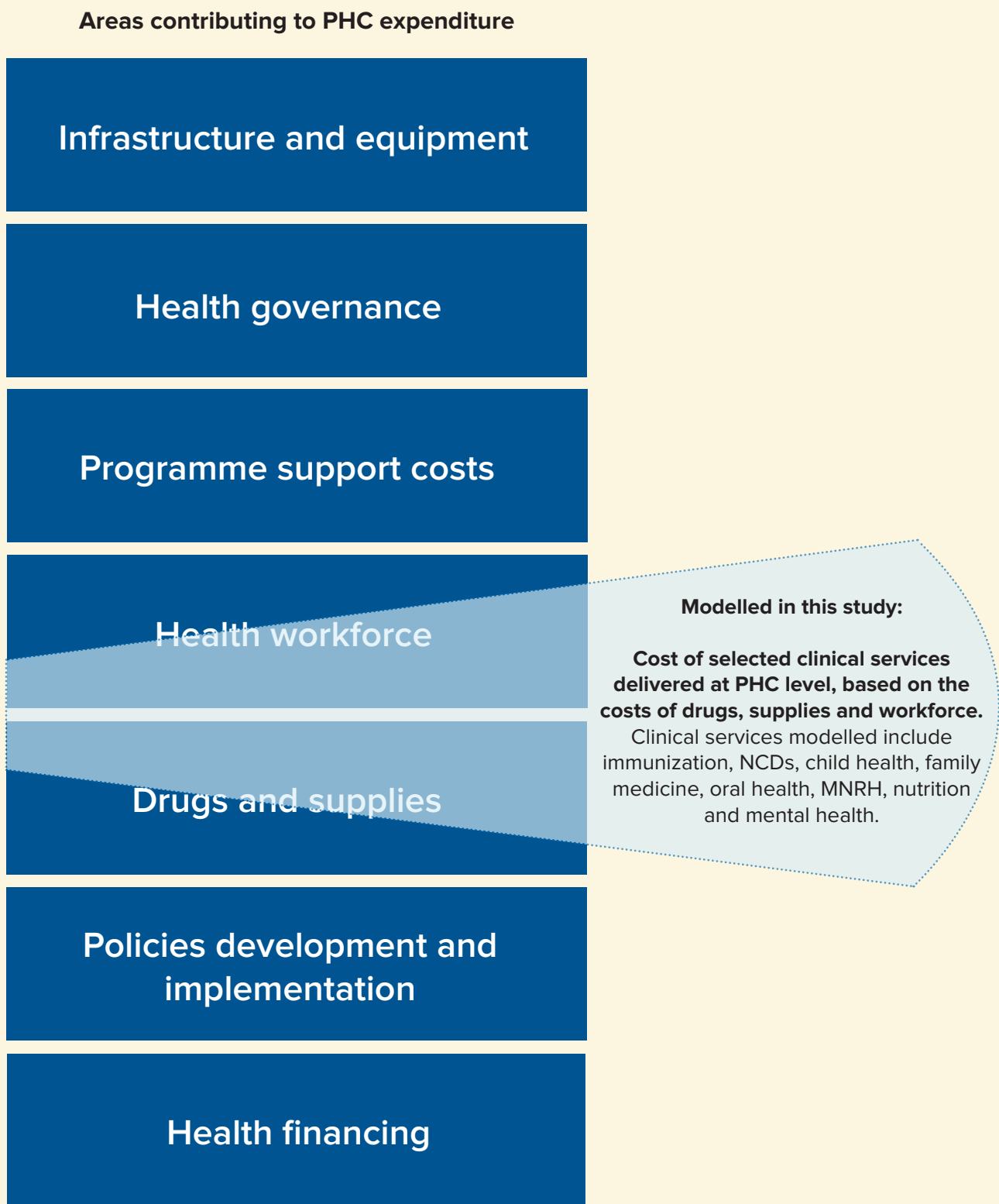
AIM OF THE STUDY

This study aims to estimate the costs of delivering a set of primary care services spread across seven programmes: (1) immunisation, (2) non-communicable diseases, (3) oral and dental care, (4) child health, (5) nutrition, (6) mental health, reproductive, maternal, neonatal and child health, and (7) general practice. The study will use this set of clinical services, delivered through the PHCC, to represent PHC. However, this set does not include all services, or all costs, associated with PHC.

SCOPE OF THE STUDY

The scope of this study is focused on costing preventive care and general outpatient care (healthcare providers, medicines, diagnostic tests, and supplies) as essential components of PHC in promoting preventive and close-to-client services. The analysis focuses on a list of outpatient clinical services delivered at the primary care level. The clinical services were determined in consultation with experts from the Ministry of Public Health. The list created does not include a full set of what can be considered PHC services. The cost of other PHC measures such as multisectoral policies and actions and empowered people and communities were not estimated. In addition, the share of the required resources for information systems, good governance and financing were not estimated. Additionally, we only estimated the costs incurred by the public sector in Qatar. The coverage rates might not reflect the number of services delivered in the private sector (**Figure 1**).

Figure 1: Primary healthcare service costs modelled in this study





Methods

SELECTION OF CLINICAL SERVICES

A list of clinical services was established based on information available in OneHealth Tool. This choice was justified by the availability of standard regimen treatments, prices and time estimates in the OneHealth Tool Costing Module. The original list was modified by FPs in each country to reflect the range of services delivered at the primary care level.

COSTS AND HEALTH EXPENDITURES

This study estimates the costs of providing a set of clinical services delivered at primary healthcare facilities. We defined total costs as the direct costs (drugs, procedures, supplies, and healthcare providers' time) spent to deliver a particular service. This definition differs from the broader notion of health expenditures, which encompasses all expenditures incurred to provide health services (infrastructure and equipment, governance, etc.). For example, while health expenditures generally include the total cost of the health workforce, this study valorised only the time spent by healthcare providers on delivering the selected clinical services. Therefore, the costing analysis did not include the time spent by healthcare providers on other clinical services or non-clinical activities (coordination, training, etc.). The costs estimated in this study only reflect the fraction of the primary healthcare expenditures directly employed to deliver the selected clinical services. Furthermore, when the costs of drugs and supplies were not available, we used standard costs developed based on standard treatment regimens and price estimates (WHO-CHOICE, WHO, UNICEF). Using standard costs provides an estimate of the expected costs of clinical services. It may differ from the actual costs, which refer to what was actually spent to deliver these selected services.

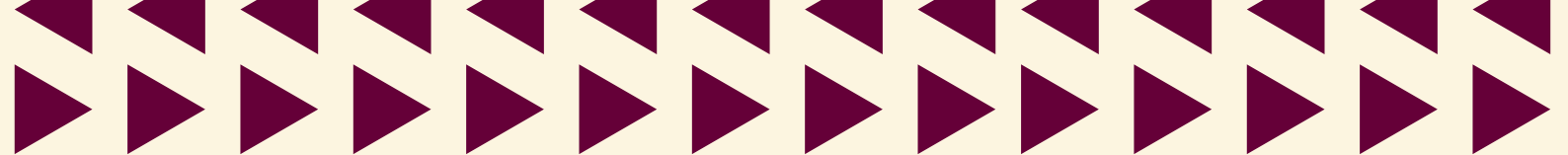
CALCULATION OF INTERVENTION COSTS AND NUMBER OF SERVICES

We used an ingredient costing method to estimate the costs of delivering a selected list of clinical services. In this approach, the cost of clinical service is considered the product of the number of clinical services delivered and the cost per service:

$$\text{Intervention cost} = \text{Number of services} \times \text{Cost per service}$$

The number of services delivered was directly obtained from the Primary Health Care Corporation (PHCC). When the number of services delivered was unavailable or expressed as a coverage rate, we estimated it as follows:

$$\text{Number of services} = \text{Target population} \times \text{Population in need} \times \text{Coverage rate}$$



To estimate the cost per service, the following formula was used:

$$\text{Cost per service} = \text{Drugs and supply costs} + \text{Healthcare provider time cost}$$

Unit prices of the drugs and supplies were directly obtained from PHCC. When unit prices were unavailable, we used costing assumptions from the OneHealth Tool Costing Module. These country-specific assumptions were developed based on standard WHO protocols, expert opinions, and international drug prices (WHO, WHO-CHOICE, UNICEF, MSH International Drug Price Indicator). Time staff requirements were extracted from the OneHealth Tool Costing Module. In addition, we developed specific assumptions for all services not included in the OneHealth Tool Costing Module (see **Annex 1**).

The different components used in the model (target population, population in need, coverage rate, drug and supply cost, and healthcare provider's time cost) are presented below.

TARGET POPULATION

The target population refers to the sub-population eligible for a specific clinical service (i.e., pregnant women, adolescents, total population). When the target population was related to an age group (i.e., children 0-59 months, adults 18+, women 15-49), we defined it from the population census or estimates provided by the Ministry of Health. When it was related to a specific condition, disease or status (i.e., people with diabetes, people with asthma, pregnant women), the target population was estimated from national surveys, statistical reports, international databases or academic literature.

The reference population used in this study was the total population, including nationals and expatriates.

POPULATION IN NEED

The population in need refers to the share of the target population, which requires a specific service per year (see **Annex 1**). It was determined by the incidence or the prevalence of a disease and/or treatment assumptions (e.g. 60 percent of people with diabetes should receive standard glyceemic control; 50 percent of women aged 40-70 should receive clinical breast examination every year).

COVERAGE RATE

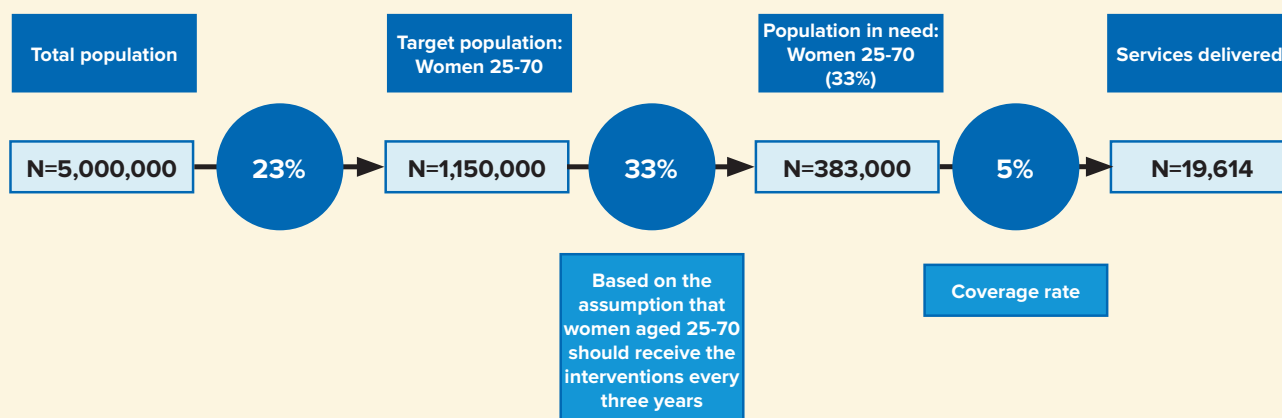
The coverage rate reflects the percentage of the population in need who received a service at the primary healthcare level. The coverage rate was calculated following three steps:

1. We estimated the population in need using prevalence rates, incidence rates or OneHealth Tool treatment assumptions.
2. We determined the number of services delivered in 2019 based on data provided by the PHCC. In the absence of relevant country-specific findings, we developed assumptions based on OneHealth Tool by-default coverage rates, data from nearby countries or the scientific literature (see **Annex 3**).
3. We divided the number of services delivered by the population in need to obtain the coverage rate.

It is important to note that the coverage rate was calculated from the data obtained from the PHCC only. Services delivered by other providers, such as the Red Crescent, were not included in this study, which may affect the coverage rate. Also, the coverage rates presented in this study don't consider the percentage of people who could have received a specific service outside the public primary healthcare level.

The links between the target population, the population in need, the coverage rate, and the number of services delivered are described below (**Figure 2**).

Figure 2: Cost calculation example: Pap smear intervention for women aged 25 to 70



The numbers in this figure are for illustration only, and do not represent Qatar, or any other country.

DRUGS AND SUPPLY COSTS

Data provided by the PHCC were used as a primary reference to determine the unit drugs, vaccines, and supply costs. Assumptions were developed when no estimate was available (see **Annex 1**).



HEALTH PROVIDERS' TIME COSTS

To estimate the cost of health providers' time per service the following formula was used:

$$\text{Healthcare provider's cost} = \text{salary per minute} \times \text{Minutes required to deliver the service}$$

The health providers' time costs refer to the time spent by healthcare providers (nurses, general practitioners, specialist doctors, midwives, etc.) for delivering one service, expressed in monetary value. These costs were estimated in two stages. First, we determined the cost of one minute spent by each category of healthcare providers based on their average annual salaries and assumptions on the number of working days per year (209 days) and working hours per day (7 hours). Then, we multiplied the number of minutes spent by health providers for each service by the associated cost per minute. The time spent by the healthcare providers was extracted from the OneHealth Tool or estimated by the research team when data was unavailable (see **Annex 1**).

ASSUMPTIONS AND LIMITATIONS

This analysis had limitations that must be mentioned. The list of clinical services costed does not include all services delivered at the primary care level. Also, the analysis did not estimate health system costs or costs related to other PHC measures.

General information was available and obtained from the Primary Health Care Corporation. This information was used to estimate the number of visits related to a programme (i.e. NCDs) and types of intervention (i.e. diabetes clinics, antenatal care) to estimate services-specific coverage rates.

The coverage rates must be interpreted with caution as they only reflect the quantity of services delivered at the primary care level. The report does not include any primary care services provided by other public service providers, which limits its scope. As a result, we can assume that some services are also delivered at other levels of the public health system and/or in the private sector. The share of services delivered in the private sector is likely to vary depending on the country's healthcare system and the population structure.

This analysis was performed in a shade of WHO assumptions and estimates related to the time, cost and coverage of interventions using OneHealth tool, which could be different to the actual practice.

There was limited available information about the overhead costs necessary for running the clinical services at primary care (i.e. training, programme management, supervision, monitoring and evaluation, communication, infrastructure and equipment, transportation, and advocacy). Therefore, an estimation of 20 percent of the total costs was used to account for this.

Primary Healthcare in Qatar

PRIMARY HEALTHCARE GOVERNANCE

Qatar's National Vision 2030 is a country-wide initiative aimed to transform Qatar into a society supportive of national human, social, economic, and environmental development.²⁰ The human development pillar of the National Vision 2030 outlines the aim to support a physically and mentally healthy population through investment in the health system and under the guidance of the National Health Strategy (2018-2022).²¹

The Primary Health Care Corporation Strategy 2018-2022 guides primary care in Qatar and aims to shift more services from secondary and tertiary-based treatment to community-based services with a focus on prevention and wellness.²² Following a successful trial in 2015-2016, all new health centres from 2018 onward have shifted to a family practice approach to healthcare. The current Primary Health Care Cooperation Strategy also aims for all patients to be assigned a dedicated physician at the primary care level. There are a number of additional national health strategies with aims that will further support care of populations at the primary level, such as the National Diabetes Strategy, the National E-Health and Data Management Strategy, Qatar Public Health Strategy, Continuing Care Design Strategy, National Mental Health & Wellbeing Strategic Framework 2019-2022 and the National Cancer Framework 2017-2022.²³

The Ministry of Public Health recently updated the Primary Health Care Cooperation Corporate Strategic Plan for 2019-2023. This plan highlight priority populations for primary healthcare and outlines six priority areas: integrated family medicine model of care, preventative health, highly skilled and motivated workforce, partnerships with patients, families and communities, an enhanced primary care system and organizational structure.²⁴

Public healthcare is overseen by the Ministry of Public Health through two organizations: the Primary Health Care Corporation (PHCC) which covers primary care and Hamad Medical Corporation (HMC) which covers secondary and tertiary care.²⁵

20 State of Qatar. Government Communications Office. Qatar National Vision 2030. Retrieved from: <https://www.gco.gov.qa/en/about-qatar/national-vision2030/>

21 Ministry of Public Health. State of Qatar. Supporting Strategies and Frameworks. Retrieved from: <https://www.moph.gov.qa/english/strategies/Supporting-Strategies-and-Frameworks>

22 Ministry of Public Health. State of Qatar. Primary Health Care Corporation Strategy. Retrieved from: <https://www.moph.gov.qa/english/strategies/Supporting-Strategies-and-Frameworks/PrimaryHealthCareFoundationStrategy>

23 Ministry of Public Health. State of Qatar. Supporting Strategies and Frameworks. Retrieved from: <https://www.moph.gov.qa/english/strategies/Supporting-Strategies-and-Frameworks>

24 Ministry of Public Health. Corporate Strategic Plan 2019-2023. Primary Health Care Corporation. Retrieved from: <https://www.moph.gov.qa/Style%20Library/MOPH/Files/strategies/National%20Primary%20Healthcare%20Strategy/PHCC%20CORPORATE%20STRATEGIC%20PLAN%20ENG%20V9.pdf>

25 Ministry of Public Health. State of Qatar. Primary Health Care Corporation Strategy. Retrieved from: <https://www.moph.gov.qa/english/strategies/Supporting-Strategies-and-Frameworks/PrimaryHealthCareFoundationStrategy>

PRIMARY HEALTHCARE SERVICES

In Qatar, both private and public healthcare facilities provide primary care services, with the PHCC the principal and largest provider in the country.²⁶ The PHCC became an autonomous entity in 2012 having been previously under the patronage of the Hamad Medical Corporation. Today, the PHCC operates 28 primary health centres with an estimated more than 1.6 million registered patients and over 4,000 clinicians.²⁷ The PHCC has a patient-centred care model of family health (i.e., one that focuses on prevention, wellness, and prioritizes the patient experience) that offers over 89 services, including dental care, mental health and physiotherapy services. Notably, in 2021, the PHCC is estimated to have had over 2.4 million family medicine visits and 2.3 million pharmacy visits.²⁸

Qatar has also made progress on using technology in the health sector. For example, in 2021 the PHCC launched the Nar'aakom app for all its e-services, available in English and Arabic, to allow residents to manage their medical appointments and records remotely. This development is in line with a previous electronic medical innovation system established in 2014 (CERNER), that digitally facilitates patient records to any PHCC or HMC facility.²⁹

In addition to above services there are alternative healthcare options in the country, including an extensive network of private healthcare providers, covering six private hospitals and more than 200 private polyclinics, as well as a range of laboratories, pharmacies and medical centres.³⁰ Moreover, Qatar Red Crescent Society for instance, a government-backed not-for-profit organization, provides philanthropic PHC services to workers and single males.³¹

PRIMARY HEALTHCARE COVERAGE

As of 2021, Qatar's population constituted 2.9 million people, with expatriates making up the majority.³² Health coverage is universal, and all citizens and residents can obtain a government health card that entitles citizens to free healthcare (with minor fees) and expatriates to subsidized access to public healthcare services. Residents can also take out private health insurance plans.³³ Indeed, there are plans to further expand and develop the private sector, including in Qatar's National Health Strategy 2018-2022.³⁴

26 Salah, H. et Kidd, M. (Ed.) (2019): Family Practice in the Eastern Mediterranean Region. CRC Press. Available at: <https://applications.emro.who.int/docs/9781138498587-eng.pdf>

27 Primary Health Care Corporation. 2022. Retrieved from: <https://www.phcc.gov.qa/>

28 Salah, H. et Kidd, M. (Ed.) (2019): Family Practice in the Eastern Mediterranean Region. CRC Press. Available at: <https://applications.emro.who.int/docs/9781138498587-eng.pdf>

29 Primary Health Care Corporation. 10th Annual Anniversary Achievement Book (2012-2022). Retrieved from: <https://www.phcc.gov.qa/en/AboutUs/Publishing-and-Reports>

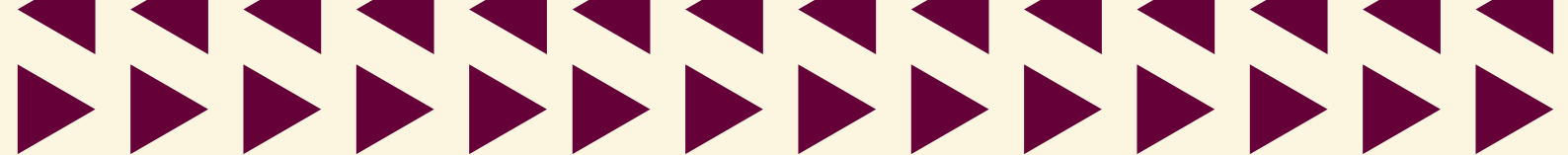
30 Oxford Business Group, "Demand for health services rises in Qatar," The Report: Qatar 2020, 2020. <https://oxfordbusinessgroup.com/overview/keeping-pace-private-sector-set-play-more-important-role-demand-medical-services-continues-rise>

31 Salah, H. et Kidd, M. (Ed.) (2019): Family Practice in the Eastern Mediterranean Region. CRC Press. Available at: <https://applications.emro.who.int/docs/9781138498587-eng.pdf>

32 The World Bank (2022): Qatar population data. Available at: <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=QA>

33 Salah, H. et Kidd, M. (Ed.) (2019): Family Practice in the Eastern Mediterranean Region. CRC Press. Available at: <https://applications.emro.who.int/docs/9781138498587-eng.pdf>

34 Ministry of Public Health. State of Qatar. National Health Strategy 2018-2022. 2018. Available from: <https://www.moph.gov.qa/HSF/Pages/NHS-18-22.aspx>



The Universal Health Care (UHC) Effective Coverage Index measures coverage of healthservices across the population based on its health needs. Qatar’s UHC Effective Coverage Index has improved over time. In 2019, the UHC score for the country was 80.4, which is significantly higher than 59.9 in 1990.³⁵ As such, Qatar’s UHC effective coverage index is one of the highest among GCC countries, higher than that of Oman (71.2) and the UAE (63.2) but lower than that of Kuwait (81.9).³⁶

PRIMARY HEALTHCARE WORKFORCE

In 2020, Qatar had the highest number of physicians per capita in the GCC, with 28 doctors per 10,000 people and 77 nurses and midwives per 10,000 people.³⁷ Within the total workforce employed by the PHCC, 220 practice as GPs and 321 practice as FPs.³⁸ The majority of all healthcare providers in Qatar work in government facilities (**Figure 3**) across most professions, with the notable exception of dentistry and pharmacy. As in other GCC countries, Qatar experiences a dependency on an expatriate healthcare workforce.³⁹ Among the total health workforce, only 6.3 percent of physicians, 1.7 percent of pharmacists and 0.9 percent of nurses were of Qatari nationality in 2020.⁴⁰

Currently, there are two medical schools in the country (Qatar University and Weill Cornell Medical College in Qatar), one family medicine department, and several dental colleges. Family medicine training is comprehensive. The family medicine residency is a four-year programme accredited by the Accreditation Council for Graduate Medical Education and the Arab Board of Medical Specialization in Family Medicine.⁴¹ Family physicians are trained in a broad range of medical specialties, including neonatal, paediatric, adult, and geriatric health. Once the formal training is complete, the PHCC ensures continuous physician education via competency-based programmes, orientations and courses.⁴²

35 Global Burden of Disease Universal Health Coverage Collaborators. 2020. Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet* 396;10258. 1250-1284. [https://doi.org/10.1016/S0140-6736\(20\)30750-9](https://doi.org/10.1016/S0140-6736(20)30750-9)

36 Global Burden of Disease Universal Health Coverage Collaborators. 2020. Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet* 396;10258. 1250-1284. [https://doi.org/10.1016/S0140-6736\(20\)30750-9](https://doi.org/10.1016/S0140-6736(20)30750-9)

37 Regional Health Observatory Data Repository, Qatar Health Report 2014–2016, Ministry of Public Health Department of Healthcare Professions

38 Salah, H. et Kidd, M. (Ed.) (2019): Family Practice in the Eastern Mediterranean Region. CRC Press. Available at: <https://applications.emro.who.int/docs/9781138498587-eng.pdf>

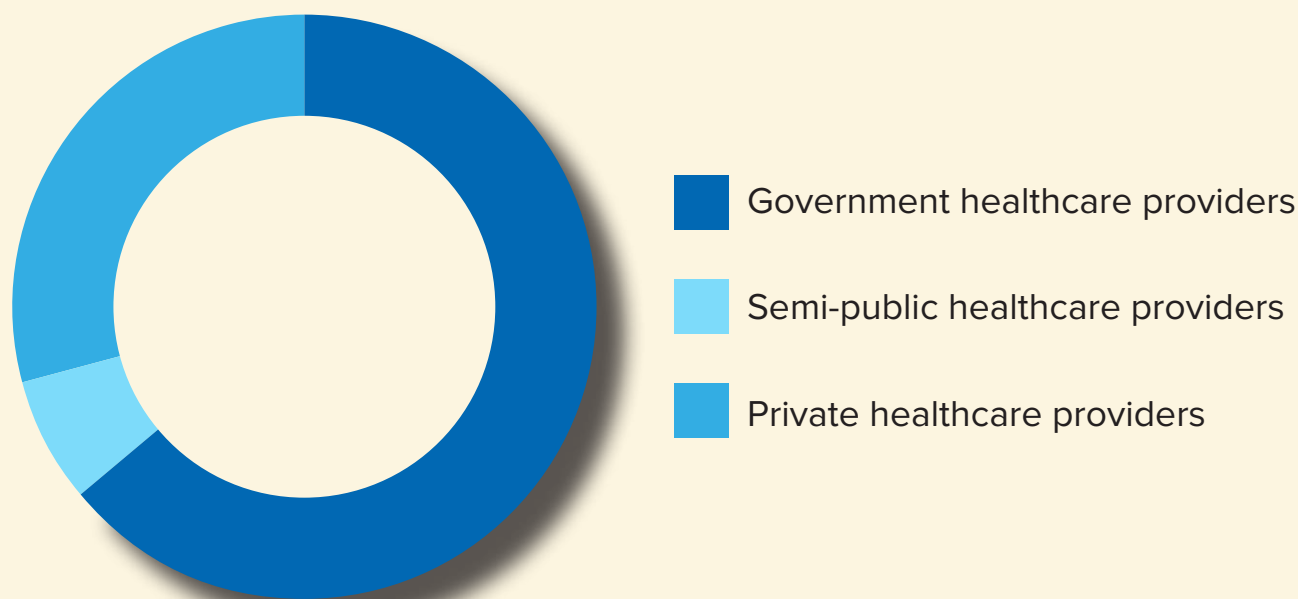
39 Sheikh, J.I., Cheema, S., Chaabna, K. et al. Capacity building in health care professions within the Gulf cooperation council countries: paving the way forward. *BMC Med Educ* 19, 83 (2019). <https://doi.org/10.1186/s12909-019-1513-2>

40 World Health Organization. Regional Office for the Eastern Mediterranean. 2022. Health workforce snapshot: Qatar. Available at <https://apps.who.int/iris/bitstream/handle/10665/352042/WHOEMHRH659E-eng.pdf?sequence=1&isAllowed=y>

41 Salah, H. et Kidd, M. (Ed.) (2019): Family Practice in the Eastern Mediterranean Region. CRC Press. Available at: <https://applications.emro.who.int/docs/9781138498587-eng.pdf>

42 Sheikh, J.I., Cheema, S., Chaabna, K. et al. Capacity building in health care professions within the Gulf cooperation council countries: paving the way forward. *BMC Med Educ* 19, 83 (2019). <https://doi.org/10.1186/s12909-019-1513-2>

Figure 3: Health workforce distribution by sector and specialty



MULTISECTORAL PRIMARY HEALTHCARE COORDINATION

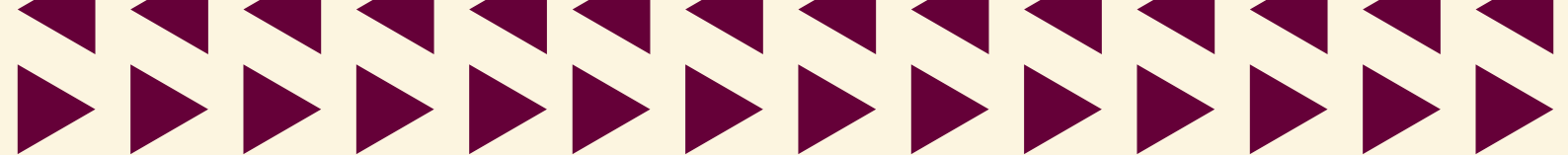
As part of the National Health Strategy 2018-2022, Qatar has prioritized a “Health in All Policies” approach to address the environmental and socioeconomic drivers of healthcare outcomes.⁴³ As such, the Ministry of Public Health has undertaken a multisectoral approach to policy and development. Qatar’s commitment to a multisectoral approach to health has been recognised internationally. Indeed, the World Health Organization (WHO) Review Mission on the National Prevention and Control Response to NCDs conducted in 2018 observed a high political commitment to NCD prevention and control across different sectors and governance structures in Qatar. In particular, the magnitude of the NCD burden, its socio-economic implications and the need for a multisectoral response was recognized by national stakeholders at different levels.⁴⁴ Most recently, Qatar also achieved two WHO Healthy City accreditations for Doha and Al Rayyan and one Healthy Education City accreditation for Qatar Foundation’s Education City.⁴⁵

The third sector and civil society have also played a role in improving primary healthcare and providing prevention services tailored to the populations needs in Qatar. For example, the Qatar Red Crescent Society opened the Qatar Workers Health Centre in December 2010, in collaboration with the Ministry of Public Health, Ministry of Labour and several select private partners. The centre bridges the gap between government, civil society and private companies, and provides community-based NCD prevention and care to male expatriate workers.

43 Ministry of Public Health. State of Qatar. National Health Strategy 2018-2022. 2018. Available from: <https://www.moph.gov.qa/HSF/Pages/NHS-18-22.aspx>

44 World Health Organization, “WHO Review Mission on the National Prevention and Control Response to Noncommunicable Diseases in Qatar,” Unpublished, 2018.

45 Ministry of Public Health (MoPH). WHO Regional Office Delegation in Qatar to Assess ‘Healthy City’ accreditation of Doha and Rayyan Municipalities. November 3rd, 2021. News Details. Retrived from: <https://www.moph.gov.qa/english/mediacenter/News/Pages/NewsDetails.aspx?ItemId=436>



The centre works with private companies to improve workers health-related knowledge and to reduce NCD burden with interventions including printing leaflets in different languages and conducting information seminars.⁴⁶

The Ministry of Public Health is proactive with other collaborative domains as well. For instance, the ministry has collaborated with the Virginia Commonwealth University School of the Arts (VCUarts) in Qatar to design health-promoting visual communication tools and medical garments for healthcare volunteers.⁴⁷

HEALTH BUDGETING

In 2019, 73 percent of the total health expenditure in Qatar was provided by the government, an increase from 60 percent in 2000. Private health expenditure and out-of-pocket health expenditure as proportions of total health expenditure have steadily decreased during the same time period, to 27 percent and 12 percent respectively in 2019.⁴⁸

Of the six GCC countries, Qatar had the lowest government health expenditure as percentage of gross domestic product in 2019 at 2 percent (from a total health expenditure as percentage of gross domestic product of 3 percent). In 2019, Qatar spent a total of US\$1,807 per capita on health, with 72.2 percent (or US\$1,305) coming from government expenditure.⁴⁹

To maintain affordable healthcare for the population, the Government of Qatar has been subsidizing services provided at healthcare facilities. In principle, both Qatari and non-Qatari residents are obliged to have some form of health insurance coverage, which allows access to healthcare for free or at lower cost. However, health insurance coverage remains an issue among certain population groups, in particular migrant workers, which exposes them to increased financial risk.⁵⁰

46 Qatar Red Crescent: Workers Health Centers. Available at: <https://www.qrcs.org.qa/en/Pages/HealthCenters.aspx>

47 Virginia Commonwealth University School of the Arts in Qatar. VCUarts Qatar's Collaboration with MoPH highlights the Role of Design in Health. November 18th, 2021. News Archive. Retrieved from: <https://qatar.vcu.edu/news/vcuarts-qatars-collaboration-with-moph-highlights-the-role-of-design-in-hea>

48 World Health Organization. 2022. Global Health Expenditure database. Accessed at <https://apps.who.int/nha/database/Select/Indicators/en>.

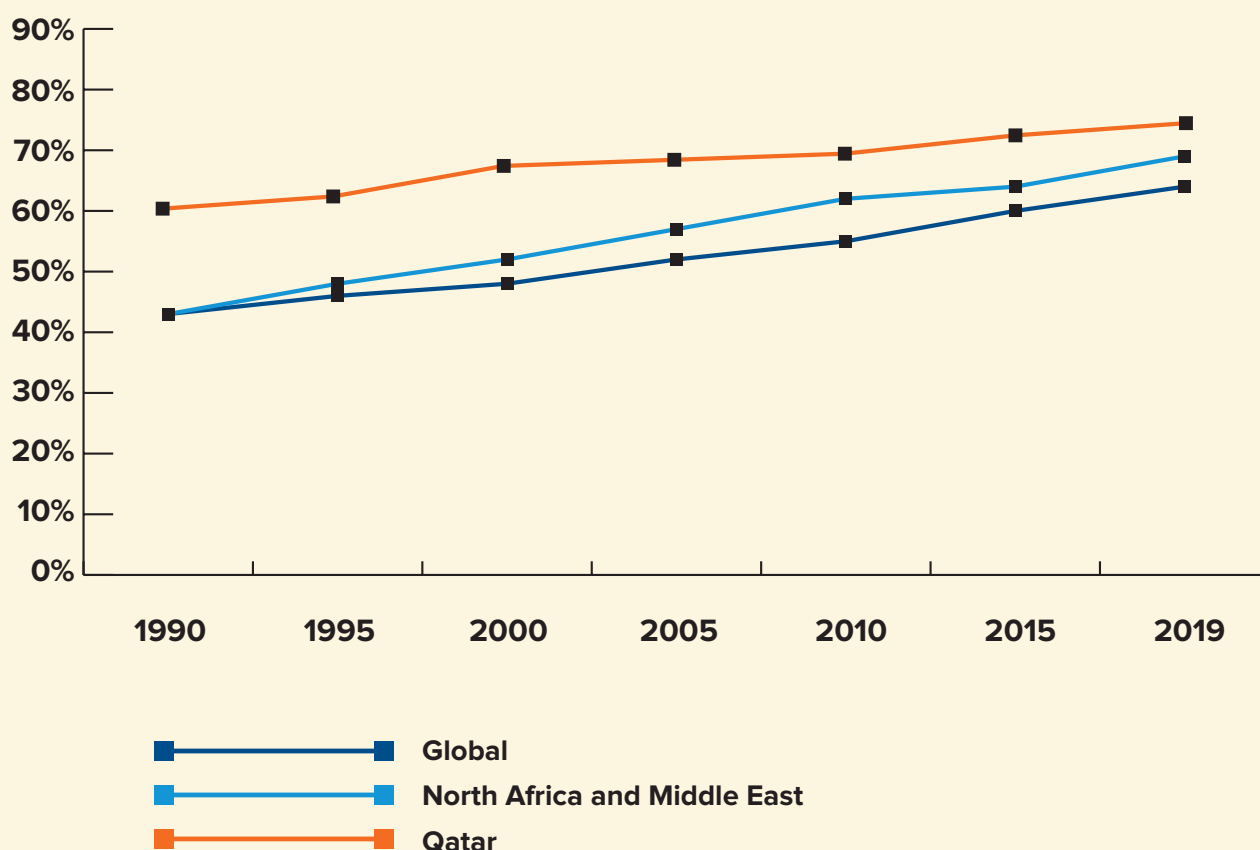
49 World Health Organization. 2022. Global Health Expenditure database. Accessed at <https://apps.who.int/nha/database/Select/Indicators/en>.

50 L. Liu, O. Gjbrea, F. M. Ali, and R. Atun, "Determinants of Healthcare Utilisation by Migrant Workers in the State of Qatar," *Health Policy (New York)*, vol. 124, no. 8, pp. 873–880, 2020.

DISEASE BURDEN

In Qatar, like in many countries, the disease burden has shifted over the last 30 years to be predominantly attributed to NCDs. In 1990, 59 percent of the total disease burden in disability-adjusted life-years (DALYs) was caused by NCDs. This has increased rapidly and NCDs now account for 74 percent of DALYs in Qatar (**Figure 4**).⁵¹ Across this time period, Qatar has had a higher NCD burden than the global and regional averages. In 2019, the remaining disease burden included injuries (19 percent) and communicable, maternal, neonatal and nutritional diseases (7 percent).⁵²

Figure 4: NCDs as percentage of total disease burden (in DALYs) 1990-2019 (Figure source: Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. Available at <https://vizhub.healthdata.org/gbd-results/>.)



51 Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. Available at <https://vizhub.healthdata.org/gbd-results/>.

52 Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. Available at <https://vizhub.healthdata.org/gbd-results/>.

Indeed, the three leading causes of NCD burden in Qatar (in DALYs) are mental health disorders (accounting for 13.7 percent of total DALYs), musculoskeletal disorders (accounting for 11.3 percent), and cardiovascular diseases (8.6 percent).⁵³ Looking at mortality, ischaemic heart disease is the leading cause of death in the country, and seven out of the top ten causes of death are NCDs.⁵⁴ These diseases are well suited to treatment in PHC, requiring consistent access to health services with providers who know their patients' histories to achieve the best outcomes.

Box 3. The burden of NCDs in Qatar⁵⁵

Detailed economic modelling for NCD Investment Cases conducted by the Gulf Health Council, UNDP and WHO revealed that the four main NCDs (cancer, cardiovascular diseases, diabetes and chronic respiratory diseases) caused 68 percent of deaths in Qatar in 2018, and the risk of dying from NCDs before the age of 70 is one in six.

NCDs cost the economy QAR 18.1 billion every year, equivalent to 2.7 percent of its annual GDP. Of these annual costs, 30 percent or QAR 5.4 billion were government healthcare expenditures.

Of note, the NCD burden above was calculated using a different methodology than the one used in this PHC study, meaning the results are not directly comparable. Indeed, in the NCD Investment Cases, the economic burden of the four main NCDs was calculated considering both direct health expenditure from government and private health providers as well as indirect economic burden from absenteeism, presenteeism and premature mortality. In contrast, this PHC report looks at the costs of a selection of clinical services delivered at public PHC.

Of note is the high level of injuries within the total disease burden in Qatar, at almost one-fifth of the total disease burden. Transport injuries in particular account for 10 percent of the total disease burden, a significantly higher level than the global, regional, and high-income country group averages (3.1 percent, 5.1 percent and 2.2 percent respectively).⁵⁶ This has decreased slightly from 12.5 percent of total disease burden in 1990, yet remains the second leading cause of death in the country.⁵⁷ Strengthening PHC services would allow resources at the secondary and tertiary levels to better meet the high levels of injuries. Additionally, maternal and neonatal disorders alone account for 3.5 percent of the total disease burden, which is significantly higher than the average for high-income countries of 1.2 percent.⁵⁸

53 Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. Available at <https://vizhub.healthdata.org/gbd-results/>.

54 Institute for Health Metrics and Evaluation. (2022). Qatar. Available at <https://www.healthdata.org/qatar>

55 Elmusharaf K., Stanton, R., Chestnov, R. et al. (2021) Prevention and Control of Non-Communicable Diseases in Qatar: The Case for Investment. Geneva: UNDP, WHO, UNIATF, GHC

56 Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. Available from <https://vizhub.healthdata.org/gbd-results/>.

57 Institute for Health Metrics and Evaluation. (2022). Qatar. Available at <https://www.healthdata.org/qatar>

58 Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. Available from <https://vizhub.healthdata.org/gbd-results/>.

The Qatari population is exposed to multiple behavioural factors for NCDs, as outlined in the National Health Strategy.⁵⁹ These include obesity, low physical activity and tobacco use. Obesity has been highlighted as a driving factor for a forecasted increase in the level of diabetes in the country, with diabetes alone potentially accounting for a third of total health expenditure by 2050.⁶⁰

A study undertaken in 2019 of all patients registered at PHC centres in Qatar found that the composition of disease burden varies with geographic location in Qatar. Finding included the central region having higher NCD rates, the northern region having higher rates of obesity and the western region having the highest number of notifiable communicable disease diagnoses.⁶¹ This wide range of health concerns between regions highlights the need to adapt PHC to regional population requirements.



Photo credit: [Freepik.com](https://www.freepik.com)

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- 59 Ministry of Public Health. State of Qatar. National Health Strategy 2018-2022. 2018. Available from: <https://www.moph.gov.qa/HSF/Pages/NHS-18-22.aspx>
- 60 Awad, S. F., O'Flaherty, M., Critchley, J., & Abu-Raddad, L. J. (2018). Forecasting the burden of type 2 diabetes mellitus in Qatar to 2050: A novel modeling approach. *Diabetes research and clinical practice*, 137, 100–108. <https://doi.org/10.1016/j.diabres.2017.11.015>
- 61 Al-Kuwari, M. G., Al-Abdulla, S. A., Abdulla, M. Y., Haj Bakri, A., Mustafa Mohammed, A., Chettiyam Kandy, M., Patterson, A., & Illiyaraja Krishnan, J. (2021). Epidemiological health assessment in primary healthcare in the State of Qatar- 2019. *Qatar medical journal*, 2021(3), 57. <https://doi.org/10.5339/qmj.2021.57>

Results

LIST OF CLINICAL SERVICES

We included 71 clinical services in the modelling. Of these, 10 clinical services relate to the immunization programme, 29 to the NCD programme, five to the child health programme, six to the nutrition programme, four to the mental health programme, 15 to the reproductive, maternal and child health programme, one to the oral and dental care programme,⁶² and one to the general practice programme (see **Annex 2** for a list of clinical services modelled). All data is based on services provided by PHCC. Services offered through healthcare providers, including the Qatar Red Crescent, were not considered.

COSTS IN 2019 – CLINICAL SERVICES

For 2019, the cost of the selected clinical services delivered at the primary care was estimated at US\$447,157,572 (**Table 1**). The overhead costs were estimated at US\$111,789,393.

The total costs were estimated at US\$558,946,965. These total costs account for 12.7 percent of the current health expenditures (CHE), 17.0 percent of the government health expenditure (GHE) and represent a per capita cost of US\$199.68.

Table 1: Costs of the clinical service modelled at primary care level in Qatar (2019)

Programme	Cost (US\$)
Immunization	14,852,268
Non-Communicable Diseases	256,519,723
Child Health	51,350,124
Nutrition	2,166,068
Mental Health	456,384
Reproductive, Maternal and Child Health	7,700,850
Oral and Dental Care	4,966,086
General Practice	109,146,069
Cost of Clinical Services	447,157,572

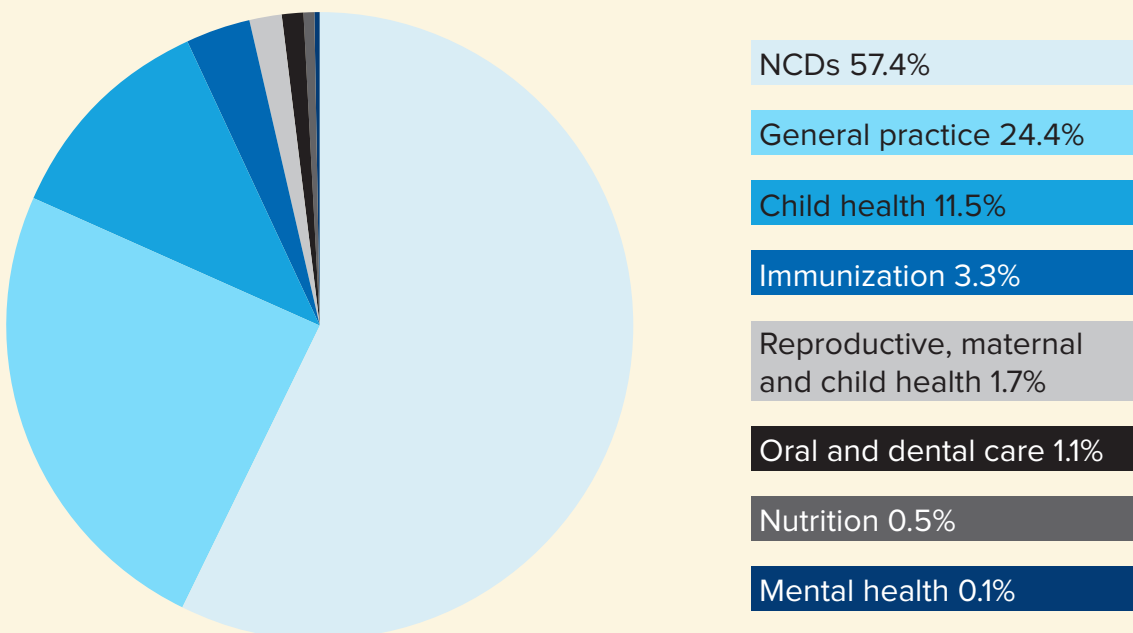
62 General practice refers to general medicine consultations conducted by a General Practitioner (GP). This includes a wide range of preventive and curative medical services. Common cases seen in general medicine consultations may include acute pain management, infectious diseases treatment, health promotion and prevention. In this study, we distinguished between general practice and specialised clinics, which were costed under other programs (maternal care, non-communicable diseases, diabetes, mental health, dental care, vaccinations). The scope of the general practice program was defined based on information and data retrieved from the Annual Health Statistics Reports.

Programme Overhead Costs (+20%)	111,789,393
TOTAL COSTS	558,946,965
Total Costs (% of THE)	12.7%
Total Costs (% of GHE)	17.0%
Total Costs per capita (US\$)	US\$199.68

COSTS BY PROGRAMME

Non-communicable diseases made up 57 percent of the clinical services costs, with costs estimated at US\$256,519,723 in 2019 (**Figure 5**). General practice is the second most expensive programme, with 24 percent of the total costs. Child health made up 11 percent of the clinical services costs. With an estimated cost of US\$456,384, the mental health programme accounts for less than 0.1 percent of the total costs, mainly because of a low coverage rate and the fact that most of the clinical services related to mental health are currently conducted at the secondary and tertiary levels in Qatar. Indeed, an estimated 430,720 individuals did not receive the mental health services they needed at the public primary care level (PHCC) in Qatar in 2019.

Figure 5: Share of total costs by programme, 2019 (QAR)



MAIN COST-DRIVING DISEASES

The analysis of the costs per clinical service showed that the prevention, treatment or control of diabetes, chronic respiratory diseases and cardiovascular diseases (CVD) are important sources of expenditure. By itself, treatment of patients with diabetes generates a cost of around US\$160 million every year. In total, these three clinical services account for 56.9 percent of the total cost estimated. The for cardiovascular diseases, diabetes and chronic respiratory disease services is 10 percent, 11 percent, and 9 percent, respectively. Due to low coverage, over 1.4 million patients in Qatar missed out on clinical services they would have needed at the primary care level in the public sector within PHCC. Please note that coverage rates and the estimated number of patients who did not receive services needed is reflective of selected primary care level services in the public sector only, meaning patients could have received these services in private or secondary/tertiary care.

Table 2: Main cost-driving disease areas

Disease	Cost (US\$)	% of Total Costs	Unique Patients	Estimated number of patients who did not receive the required services	Coverage Rate
CVD	12,132,284	2.7%	82,972	750,624	10.0%
Diabetes	160,173,934	35.8%	61,750	526,147	10.5%
Chronic Respiratory Diseases	82,129,812	18.4%	16,838	181,813	8.5%
Total	254,436,030	56.9%	161,560	1,458,585	10.0%

SCREENING

Taken together, services related to the screening of risk of cardiovascular diseases and diabetes, cancers, and diabetes complications were estimated at US\$2,013,360. This represents 0.5 percent of the total costs in 2019. In line with low spending on screening, coverage rates for these services are very low. Indeed, over 1.4 million people in Qatar have not received needed screening services for these NCDs at the public primary care level within PHCC.

Table 3: Costs of top three screening services

Screening	Cost (US\$)	% of Total Costs	Unique Patients	Estimated number of patients who did not receive the required services	Coverage Rate
Screening for risk of CVD/Diabetes	239,015	0.1%	35,368	671,988	5.0%
Screening for Cancer (CBE, Pap Smear, FOBT)	795,485	0.2%	12,568	191,047	6.2%
Screening for Diabetes Complications	978,861	0.2%	5,879	582,019	1.0%
Total	2,013,360	0.5%	53,815	1,445,053	3.6%



Recommendations

Qatar recognizes the importance of strong PHC to build an effective, efficient health system and foster a healthy society. This is demonstrated by the aim to support population health in the National Vision 2030. In recent years, Qatar has made good progress in strengthening PHC with plans to shift services from secondary and tertiary into primary care and a stronger focus on disease prevention.

In this study, we estimated the costs of a selection of clinical services delivered at public primary care level in Qatar. These costs were estimated based on the cost of medical supplies as well as salaries of medical professionals needed to deliver the service. This study does not consider other factors contributing to healthcare expenditure such as governance, infrastructure or programme support costs. Further important limitations and considerations are highlighted in the methods section.

The costing analysis included in this report has highlighted a number of areas where PHC services and resource allocation in Qatar could be further strengthened. The following actions would assist Qatar to reap significant health and economic benefits across the population:

1

Scale-up NCD clinical and screening services delivered at the primary care level.

NCDs account for a large proportion of morbidity and mortality in Qatar. In line with the high disease burden and cost for continuous care and medications, NCDs received the highest spending across programme areas at the PHC level in 2019. However, as modelled in this costing exercise, there is room to improve coverage rates of both clinical and screening services for NCDs, with around 1.5 million people not receiving the NCD clinical or screening services they needed at the PHCC level in 2019. Notably, patients missing out on services at the public primary care level may have sought out these services elsewhere, including through secondary or tertiary public as well as private care.

Nonetheless, expanding the breadth and coverage of NCD clinical and screening services at the primary care level in Qatar would provide the opportunity for more coordinated, accessible and cost-effective NCD programmes in the country. Screening programmes in particular could help reduce the disease burden through early intervention as well as reduce long-term associated health costs while increasing population health and wellbeing. Importantly, scaling up of services for NCDs will incur additional health system costs, such as workforce training and facilities, alongside a direct increase in services and the associated costs modelled in this analysis.

2

Increase mental health services in primary care facilities.

Qatar has a comparatively high burden of mental health disorders, which make up 14 percent of the overall disease burden in DALYs in the country in 2019. Moreover, demand for mental health services will likely have increased in recent years as it is well established that the COVID-19 pandemic has had a negative impact on many people's mental health and wellbeing.⁶³ Despite this high prevalence and clear need for care, mental health services at PHC level currently account for just 0.1 percent of total costs modelled in this report. An estimated 430,000 people did not receive necessary mental health services within PHCC at the public primary care level in Qatar in 2019.

Integrating mental health screening and care services into primary care will not only ensure better access to mental healthcare for the population but has also been demonstrated to lead to better health outcomes than treatment in secondary or tertiary care.⁶⁴ Moreover, prominent mental health services in primary care can help provide visibility to mental health disorders and provide a platform for education and awareness campaigns to reduce stigma associated with these conditions. Conceptually, scaling up mental health services in primary care is part and parcel to a people-centred approach of PHC that aims to care for patients and communities in all areas of health and disease.

3

Launch initiatives to strengthen the national healthcare workforce.

Like other countries in the region, Qatar currently relies on expatriate healthcare professionals, including doctors and nurses. Moreover, the number of doctors and nurses per 1000 population in Qatar lies below the OECD average, highlighting a clear opportunity to further build up the national healthcare workforce. Qatar could introduce initiatives and programmes to recruit and train more national healthcare workers. This could for example include offering scholarships provided to nationals wanting to become nurses or family practitioners and scaling up the intake on FP training courses.

63 World Health Organization. 2022. Mental Health and COVID-19: Early evidence of the pandemic's impact. Scientific brief.

64 Funk M, Saraceno B, Drew N, Faydi E. Integrating mental health into primary healthcare. *Ment Health Fam Med.* 2008 Mar;5(1):5-8. PMID: 22477840; PMCID: PMC2777555. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2777555/>



4

Leverage the modelling in this study to further improve primary care efficiencies and health outcomes.

The detailed costing in this study is a first step towards better understanding the costs associated with clinical services delivered at the primary care level in Qatar. Understanding these costs, and comparing them to budgets and expenditures, can help identify areas and services that would benefit from more resources or could be run more efficiently. Qatar can thus utilise the data and costing model generated in this report to further increase the efficiency of the primary care system, ultimately improving health outcomes.

It may also be of use to repeat this costing exercise in the near future to assess the impact of any potential changes introduced to primary care service delivery in the country. To this end, it would be beneficial to clearly define the UHC health benefits packages, as this would allow modelling of costs associated with services included in this package.

Annex 1: Assumptions used for population in need, drugs and supplies, and labour costs

Clinical Services	Population in Need	Drugs and Supply Costs	Labour Costs
Varicella vaccine	Children 1 and 5 years old, for the first and the second dose	USD 17.5 for one dose (WHO Review of vaccine price data)	Nurse (4 min) and GP (4 min) for one dose
Influenza vaccine	Children 0-5 + Pregnant women + People 65+	USD 2.39 for one dose (WHO Review of vaccine price data)	Nurse (4 min) and GP (4 min) for one dose
Retinopathy screening	People with diabetes should be screened every year (100%)	-	-
Neuropathy screening	People with diabetes should be screened every year (100%)	-	-
Clinical breast examination	Women aged 40-70 should be screened every 2 years (50%)	-	-
Diagnosis after screened with clinical breast examination	Based on country breast cancer incidence rate (WHO – IARC 2020)	-	-
Pap smear	Women 30-49 should be screened every 3 years (33%)	-	-
Fecal occult blood screening	People 50+ should be screened every 10 years (10%)	-	-
Dental cleaning and preventive care	All population	No costs estimated	Nurse (20 min) and Dentist (15 min) for one visit
Child General Health	Children 0-14	Cost per outpatient visit (WHO-CHOICE) – Labour costs	GP (15 min) for one visit
Pneumonia treatment	-	-	Nurse (20 min) + GP (20 min) for one visit
Daily iron and folic acid supplementation (anaemic pregnant women)	100% of anaemic pregnant women (World Bank)	-	-
Intermittent iron folic acid supplementation (non anaemic pregnant women)	100% of non anaemic pregnant women (World Bank)	-	-
Daily FAF (folic acid fortification), postpartum, non anaemic women	Based on number of live births (Annual Health Statistics) and percentage of anaemic women (World Bank)		

Intermittent FAF, postpartum, anaemic women	Based on number of live births (Annual Health Statistics) and percentage of non anaemic women (World Bank)		
Care for adults with low body mass index (BMI)	100% of underweight adults (Global Nutrition Report)	-	-
All mental health clinical services	Based on prevalence rates (Zuberi et al. 2021, GBD 2016 Epilepsy Collaborators, GBD 2016 Dementia Collaborators, WHO-EMRO, Atlas of Substance Disorder).	-	-
Treatment of postpartum haemorrhage (PPH)	Based on incidence rates of PPH	-	-
Identification and management of infertility	Based on regional prevalence (Eldib 2018) among adults 15-49 (3.8%)	-	-
Treatment of syphilis	Based on regional incidence rates (Kenyon et al. 2014) among adults 15-49 (2.2%)	-	-
Treatment of gonorrhoea	Based on regional incidence rates (Kenyon et al. 2014) among adults 15-49 (0.9%)	-	-
Treatment of chlamydia	Based on regional incidence rates (Kenyon et al. 2014) among adults 15-49 (1.9%)	-	-
Treatment of trichomoniasis	Based on regional incidence rates (Kenyon et al. 2014) among adults 15-49 (2.8%)	-	-
Treatment of pelvic inflammatory infection	Based on US incidence rate (Kresiel 2021) among adults 15-49 (3.6%)	-	-
General practice	All population	Cost per outpatient visit (WHO-CHOICE) – Labour costs	GP (15 min) for one visit
School health	PIN was not estimated since the number of visits was directly provided by MOH	No costs estimated	Nurse (10 min) for one visit
Postpartum care examination	PIN was not estimated since the number of visits was directly provided by MOH	Cost per outpatient visit (WHO-CHOICE) – Labour costs	GP (10 min) and Midwife (20 min) for one visit
Allied health	PIN was not estimated since the number of visits was directly provided by MOH	Cost per outpatient visit (WHO-CHOICE) – Labour costs	Nurse (20 min) for one visit
All Services	-	-	Community health workers time was allocated to nurses

Annex 2: Breakdown of costs for clinical services provided at PHC level

Clinical services provided at PHC Level	Drug & Supplies Costs (QAR, 2019)	Health Providers Costs (QAR, 2019)	Total Costs (Drugs & Supplies and Providers)
IMMUNIZATION			
Rotavirus vaccine	3,429,767	3,874,583	7,304,350
Measles vaccine	1,265,267	2,590,963	3,856,230
Diphtheria, Tetanus and Pertussis (DPT) vaccine	2,213,513	1,313,925	3,527,437
Hib vaccine	2,174,640	3,874,583	6,049,223
Hepatitis B (Hep B) vaccine	1,124,135	3,874,583	4,998,718
Polio vaccine	113,698	5,250,456	5,364,153
BCG vaccine	56,048	1,300,753	1,356,801
Pneumococcal vaccine	10,968,030	5,181,926	16,149,956
Varicella vaccine	3,497,100	2,541,153	6,038,254
Influenza vaccine	64,936	298,345	363,280
NON-COMMUNICABLE DISEASES			
CVD & Diabetes			
Screening for risk of CVD/Diabetes	512,126	373,115	885,240
Follow-up care for those at low risk of CVD/Diabetes (Absolute Risk: 10-20%)	10,907	7,946	18,854
Treatment for those with very high cholesterol but low absolute risk of CVD/Diabetes (< 20%)	11,198,130	6,360,530	17,558,660
Treatment for those with high blood pressure but low absolute risk of CVD/Diabetes (< 20%)	15,024,001	10,040,063	25,064,064
Treatment for those with absolute risk of CVD/Diabetes 20-30%	251,307	107,316	358,623
Treatment for those with high absolute risk of CVD/Diabetes (>30%)	361,149	202,870	564,020
Treatment of new cases of acute myocardial infarction (AMI) with aspirin	7,186	17,719	24,905
Treatment of cases with established ischaemic heart disease (IHD)	749,135	260,556	1,009,690
Treatment for those with established cerebrovascular disease and post stroke	80,413	31,136	111,550

Clinical services provided at PHC Level	Drug & Supplies Costs (QAR, 2019)	Health Providers Costs (QAR, 2019)	Total Costs (Drugs & Supplies and Providers)
Treatment of cases with rheumatic heart disease (with benzathine penicillin)	9,789	214,228	224,017
Standard Glycemic control	429,692,562	8,975,038	438,667,600
Intensive Glycemic control	150,605,780	3,963,413	154,569,193
Retinopathy screening	205,441	185,006	390,446
Neuropathy screening and preventive foot care	187,569	400,846	588,414
Breast Cancer			
Basic breast cancer awareness	0	237,428	237,428
Screening: Clinical Breast Examination	0	1,566,728	1,566,728
Cervical Cancer			
Papanicolaou test (Pap smear)	53,060	1,066,089	1,119,148
Colorectal Cancer			
Screening: Faecal occult blood testing	29,770	230,593	260,363
ALLIED HEALTH			
Allied health	37,099,316	6,421,304	43,520,620
RESPIRATORY DISEASE			
Asthma: Inhaled short acting beta agonist for intermittent asthma	51,789,566	705,634	52,495,200
Asthma: Low dose inhaled beclometasone + short-acting beta-agonists (SABA)	84,297,478	705,634	85,003,112
Asthma: High dose inhaled beclometasone + SABA	116,805,391	705,634	117,511,024
Chronic obstructive pulmonary disease (COPD): Smoking cessation	0	350,579	350,579
COPD: Inhaled salbutamol	12,200,977	166,239	12,367,215
COPD: Low-dose oral theophylline	209,160	166,239	375,398
COPD: Ipratropium inhaler	35,170,991	166,239	35,337,230
COPD: Exacerbation treatment with antibiotics	1,172	370,802	371,974
COPD: Exacerbation treatment with oral prednisolone	1,954	370,802	372,756
EMERGENCY CARE			
Average annual emergency care needs	2,669,613	NR	2,669,613

Clinical services provided at PHC Level	Drug & Supplies Costs (QAR, 2019)	Health Providers Costs (QAR, 2019)	Total Costs (Drugs & Supplies and Providers)
CHILD HEALTH			
General Health			
Child general health	97,406,945	90,829,416	188,236,361
General Health			
School health	97,330,176	636,666	97,966,841
Deworming			
Deworming	9,895	0	9,895
Diarrhoea management			
ORS	27,122	405,847	432,968
Pneumonia			
Pneumonia treatment (children)	39,753	906,772	946,525
NUTRITION			
Women of reproductive age and adolescent girls			
Intermittent iron-folic acid supplementation	30,923	0	30,923
Pregnant and lactating women			
Daily iron and folic acid supplementation (pregnant women)	18,912	153,471	172,383
Intermittent iron and folic acid supplementation (non-anaemic pregnant women)	6,637	414,939	421,577
Adults			
Care for adults with low body mass index	251,722	684,631	936,353
Children			
Breastfeeding counselling and support	0	2,937,393	2,937,393
Intermittent iron supplementation in children	190,670	3,333,175	3,523,845
MENTAL HEALTH			
Anxiety Disorders			
Basic psychological treatment for anxiety disorders (mild cases)	0	879,309	879,309
Basic psychosocial treatment and anti-depressant medication for anxiety disorders (moderate-severe cases)	75,287	107,985	183,272

Clinical services provided at PHC Level	Drug & Supplies Costs (QAR, 2019)	Health Providers Costs (QAR, 2019)	Total Costs (Drugs & Supplies and Providers)
Depression			
Basic psychosocial treatment for mild depression	0	519,460	519,460
Basic psychosocial treatment and anti-depressant medication of first episode moderate-severe cases	44,476	63,793	108,270
MATERNAL NEONATAL AND REPRODUCTIVE HEALTH			
Family planning			
Contraception management	256,321	2,348,882	2,605,203
Management of abortion complications			
Post-abortion case management	206,835	200,349	407,185
Pregnancy care			
Tetanus toxoid (pregnant women)	870,836	4,243,027	5,113,862
Syphilis detection and treatment (pregnant women)	291,962	4,392,762	4,684,724
Basic ANC	0	9,234,730	9,234,730
Breast feeding education and advices	0	1,123,014	1,123,014
Postpartum care - other			
Postpartum Care Examination	2,009,220	1,834,620	3,843,840
Treatment of postpartum hemorrhage	1,757	13,924	15,681
Other sexual and reproductive health			
Treatment of urinary tract infection (UTI)	67,938	573,368	641,306
Identification and management of infertility	0	814,958	814,958
Treatment of syphilis	763	2,752	3,515
Treatment of gonorrhea	492	11,075	11,566
Treatment of chlamydia	12	134	147
Treatment of trichomoniasis	85	1,879	1,965
Treatment of PID (Pelvic Inflammatory Disease)	9,768	10,202	19,970
GENERAL PRACTICE			
General Practice	209,105,512	195,139,188	404,244,700
ORAL CARE AND CANCER			
Dental cleaning and preventive care	0	18,392,912	18,392,912

Annex 3: References and assumptions used to estimate the total number of services delivered

Clinical Services	Reference / Assumption
IMMUNIZATION	
Rotavirus vaccine	Global Health Observatory (WHO)
Measles vaccine	Qatar Health Statistics 2019
DPT vaccine	
Hib vaccine	
Hep B vaccine	
Polio vaccine	
BCG vaccine	
Pneumococcal vaccine	
Varicella vaccine	
Influenza vaccine	Assumption based on GCC countries
NON-COMMUNICABLE DISEASES	
CVD & Diabetes	
Screening for risk of CVD/Diabetes	Assumption: 5%
Follow-up care for those at low risk of CVD/Diabetes (Absolute Risk: 10-20%)	Estimation based on PHCC Official Statistics
Treatment for those with very high cholesterol but low absolute risk of CVD/Diabetes (< 20%)	
Treatment for those with high blood pressure but low absolute risk of CVD/Diabetes (< 20%)	
Treatment for those with absolute risk of CVD/Diabetes 20-30%	
Treatment for those with high absolute risk of CVD/Diabetes (>30%)	
Treatment of new cases of acute myocardial infarction (AMI) with aspirin	
Treatment of cases with established ischaemic heart disease (IHD)	
Treatment for those with established cerebrovascular disease and post stroke	
Treatment of cases with rheumatic heart disease (with benzathine penicillin)	
Standard Glycemic control	
Intensive Glycemic control	

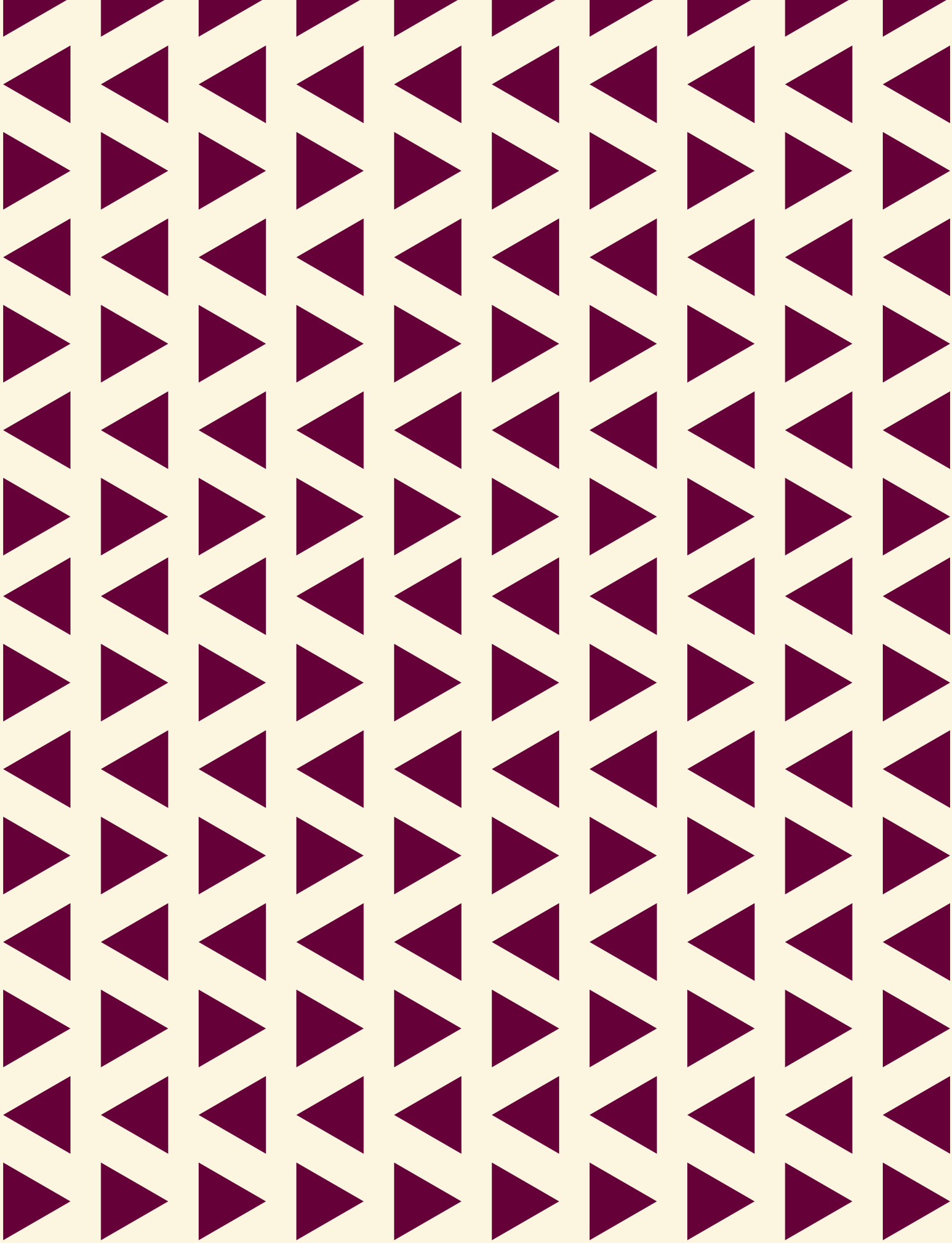
Clinical Services	Reference / Assumption
Retinopathy screening	Assumption: 1%
Neuropathy screening and preventive foot care	Assumption: 1%
Breast Cancer	
Basic breast cancer awareness	Assumption: 5%
Screening: Clinical Breast Examination	Assumption based on GCC countries and PHCC Official Statistics
Cervical Cancer	
Papanicolaou test (Pap smear)	Assumption based on GCC countries and PHCC Official Statistics
Colorectal Cancer	
Screening: Faecal occult blood testing	Assumption based on GCC countries and PHCC Official Statistics
ALLIED HEALTH	
Allied health	PHCC Official Statistics
RESPIRATORY DISEASE	
Asthma: Inhaled short acting beta agonist for intermittent asthma	PHCC Official Statistics
Asthma: Low dose inhaled beclometasone + SABA	
Asthma: High dose inhaled beclometasone + SABA	
COPD: Smoking cessation	
COPD: Inhaled salbutamol	
COPD: Low-dose oral theophylline	
COPD: Ipratropium inhaler	
COPD: Exacerbation treatment with antibiotics	
COPD: Exacerbation treatment with oral prednisolone	
EMERGENCY CARE	
Average annual emergency care needs	N/A
CHILD HEALTH	
General Health	
Child general health	Estimation based on PHCC Official Statistics
General Health	
School health	PHCC Official Statistics
Deworming	
Deworming	Assumption based on UHC Service Coverage Index for Infectious Diseases
Diarrhoea management	
ORS	Assumption based on UHC Service Coverage Index for Infectious Diseases

Clinical Services	Reference / Assumption
Pneumonia	
Pneumonia treatment (children)	Assumption based on UHC Service Coverage Index for Infectious Diseases
NUTRITION	
Women of reproductive age and adolescent girls	
Intermittent iron-folic acid supplementation	Assumption: 50%
Pregnant and lactating women	
Daily iron and folic acid supplementation (pregnant women)	Assumption based on PHCC Official Statistics and World Bank
Intermittent iron and folic acid supplementation (non-anaemic pregnant women)	
Adults	
Care for adults with low body mass index	Assumption: 2.5%
Children	
Breastfeeding counselling and support	Assumption: 70%
Intermittent iron supplementation in children	Assumption based on Zainel et al. 2018
MENTAL HEALTH	
Anxiety Disorders	
Basic psychological treatment for anxiety disorders (mild cases)	PHCC Official Statistics
Basic psychosocial treatment and anti-depressant medication for anxiety disorders (moderate-severe cases)	
Depression	
Basic psychosocial treatment for mild depression	PHCC Official Statistics
Basic psychosocial treatment and anti-depressant medication of first episode moderate-severe cases	
MATERNAL NEONATAL AND REPRODUCTIVE HEALTH	
Family planning	
Contraception management	Estimation based on PHCC Official Statistics
Management of abortion complications	
Post-abortion case management	Estimation based on PHCC Official Statistics
Pregnancy care	
Tetanus toxoid (pregnant women)	Estimation based on PHCC Official Statistics
Syphilis detection and treatment (pregnant women)	
Basic ANC	
Breast feeding education and advices	

Clinical Services	Reference / Assumption
Postpartum care - other	
Postpartum Care Examination	PHCC Official Statistics
Treatment of postpartum hemorrhage	
Other sexual and reproductive health	
Treatment of urinary tract infection (UTI)	PHCC Official Statistics
Identification and management of infertility	
Treatment of syphilis	
Treatment of gonorrhea	
Treatment of chlamydia	
Treatment of trichomoniasis	
Treatment of PID (Pelvic Inflammatory Disease)	
GENERAL PRACTICE	
General Practice	PHCC Official Statistics
ORAL CARE AND CANCER	
Dental cleaning and preventive care	PHCC Official Statistics



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